Metropolitan District Commission - Division of Watershed Management

Hazardous Materials Fact Sheet

FS01.04 - June, 2001

1. Description of Watershed Protection Activity:

Hazardous Materials (HM) are substances that cause adverse health effects via inhalation, physical contact, ingestion, or combustion. These substances can threaten water quality through accidental spills at fixed sites as well as during transportation. Fixed sites include both businesses (industrial and commercial operations that use HM) and homes (from residential heating oil tanks and various hazardous household products). Transportation related threats come from cars, trucks, aircraft or rail cars that traverse the watersheds. The potential severity of a water quality impact by a release depends on its proximity to the reservoir or its tributaries, the type of material discharged, and the amount released.

The Metropolitan District Commission, Division of Watershed Management (MDC/DWM) embraces three protection principals in its' program to address the threat from HM in the communities that surround the drinking water supply for 2.5 million people: 1.) HM generator inspections; 2.) Household hazardous waste collection; and 3.) Transportation release risk reduction. MDC/DWM's program goals are:

- Document generator sites and storage tanks;
- Reduce the volume of improperly disposed household hazardous materials;
- Compile an inventory of HM transport routes;
- Improve conditions along transportation corridors to minimize the risks of release of hazardous materials to the watershed system.

Sources of Hazardous Materials:

Agricultural Operations and Farms
pesticides, herbicides, fuels and oils

Auto Service Stations and Junkyards
fuel, motor oils, hydraulic fluids, degreasers, paints and solvents

Chemical Manufacturing and Storage
solvents, by-products, and raw materials

Construction Sites
fuel, oil, solvents, hydraulic fluid

Dry Cleaners
cleaners and solvents

Electronics Manufacturers
processing chemicals, solvents, heavy metals

Electroplating Operations
processing chemicals, heavy metals

Industrial-Asphalt Plants
tars, oils and solvents

Paint Shops
paints and solvents

Railroad Containers
fuel, motor oils, solvents, hydraulic fluid, processing chemicals, chemical carcinogens, and synthetic organic compounds

Residential
home heating oil, household cleaners, lawn and garden chemicals

2. Pollutants-of-Concern:

A wide range of hazardous materials from many sources can exist within the MDC/DWM watersheds. Typical sources, with the most common HM, are listed here alphabetically:

3. Control Strategy:

MDC/DWM has classified HM contamination risks into three general groups: **Fixed Sites**, **Residential Usage**, and **Transportation Activities**.

Fixed Sites

"Fixed sites" include businesses or industries that develop HM as a product or use HM in their production processes. It also includes locations where a HM spill previously occurred and a cleanup is proceeding. Local Fire Departments, maintain a database of existing underground storage tanks and sites where tanks have been removed. The Department of Environmental Protection has a list of HM generators posted on the internet (www.state.ma.us/dep/bwsc/sitelist.htm) as well as data on transportation related and fixed site releases. Current underground storage tank regulations (310 CMR 40) require owners of existing or new tanks to obtain permits from local fire departments, documenting tank size, age, type, location and use. New storage facilities must meet strict design standards to prevent leaks, while existing tanks are checked on a regular basis and replaced if found to be defective. The Watershed Protection Regulations (350 CMR 11.00) prohibits the generation, storage, or disposal of HM within 200 feet of tributaries and 400 feet of the reservoirs within the Quabbin Reservoir, Ware River, and Wachusett Reservoir watersheds, except in amounts incidental to residential use.

Division staff work with other state agencies to educate commercial entities on methods to reduce the risks of accidental releases. Current regulations require commercial operations to develop in-house emergency response and spill prevention measures, and to document an organized system of communication with state and local emergency responders.

MDC/DWM and DEP have been trained in multi-media inspections; inspections have been completed of all fixed HM sites within the Wachusett Reservoir Watershed. A beneficial result of these multi-media inspections is that the facilities subject to the State's Underground Injection Control regulations (310 CMR 27.00) have been investigated and are now in full compliance.

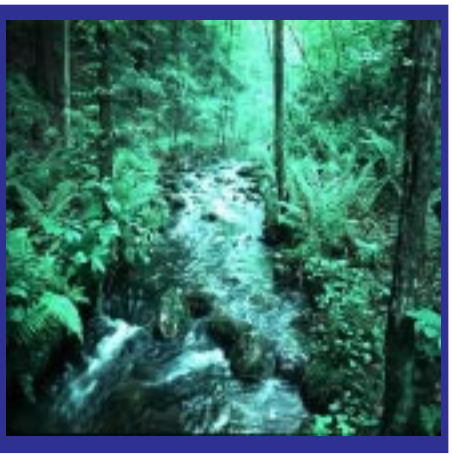
Residential Hazardous Materials Use

Risks from residential use of HM are most often associated with leaking or improper refilling of home heating oil tanks and the improper use or disposal of cleaners and pesticides. To help reduce the risks associated with residential use of HM, referred to as household hazardous materials (HHM), MDC/DWM initiated a program in 1995 to collect leftover or unused HHM. Four MDC/DWM sponsored household hazardous waste collections have been held through the winter of 2000 in the Wachusett Reservoir watershed, removing over 5 tons and 2,000 gallons of hazardous waste from homes in these communities.

In addition, the Wachusett Household Hazardous Products Committee, hosted by the Town of Sterling, received funds from the Metropolitan District Commission to hire a part-time consultant. This consultant developed a program to reduce the use and storage of household hazardous products in the watershed. The projects in this program included an education curriculum for local schools and civic groups, payments for household hazardous products collection set up fees, and the development of HHM brochures.

Transportation Activities

"Transportation activities" include the conveyance of HM products or wastes from fixed sites and residences, as well as the materials used in the operation of vehicles. To reduce the risks associated with transportation-related releases of HM, MDC/DWM began a program to inventory HM carriers,



Leaking or improperly disposed hazardous materials can move underground or can be carried downstream by storm runoff threatening water quality.

products being transported, and conveyance routes within the watersheds. MDC/DWM contracted with Rizzo Associates Inc., to survey the watersheds and assess risks of contamination from potential transportation-related spills. An analysis of HM transported over the roadways was used to estimate the peak daily traffic volume of HM vehicles on roadways within the MDC/DWM watersheds. Figure 1 shows the numbers of peak daily HM vehicle traffic calculated in the winter, which includes numerous trips for deliveries of home heating oil.

The traffic, structures, and operations along both road and railway corridors were also assessed to determine preliminary areas of concern. These areas are being investigated to develop specific enhancements that will be incorporated into a list of recommended right-of-way improvements. These recommendations will help in the development of a coordinated implementation funding program between MDC/DWM, Massachusetts Highway Department (MHD) and other transportation related entities.

The Division hired Comprehensive Environmental Inc. (CEI) in 1998 to develop an Emergency Response Planning Study. Each watershed community's Emergency Response Plan was assessed, Including the town's equipment and training needs. This study concluded that the current responders -the local fire departments- are efficient and effective for HM emergencies. MDC/DWM is committed to supporting their work by sponsoring training opportunities and purchasing equipment.

4. Monitoring:

The water quality monitoring program (see Water Quality Monitoring Fact Sheet 99.02) periodically analyzes for a broad range of HM. If a positive result is found, then modifications are made to identify the source of the contamination. Further surveillance is provided through the Division's annual cycle of sanitary surveys within the sub-basins of the Quabbin Reservoir, Ware River, and Wachusett Reservoir watersheds. Data collected by the surveys relative to the tributaries and their environs are shared with other appropriate agencies, including local fire departments.

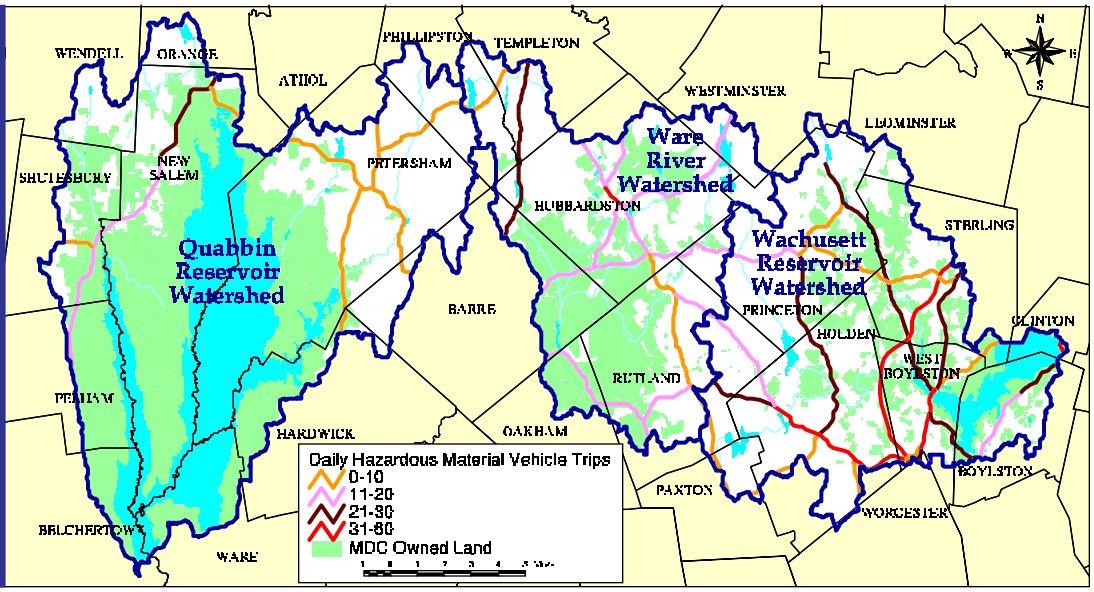
The MDC/DWM Watershed Rangers, in cooperation with the Massachusetts State Police, patrol MDC property and nearby railways and roadways. They report and investigate suspicious carriers, accidental spills, and dumping.

5. Current Status of the Control Program:

MDC/DWM coordinates with DEP to inventory and monitor auto repair, salvage operations, and other

Figure 1. Peak Daily HM Traffic in Active MDC/DWM Watersheds

This map shows the routes and frequency of potentially hazardous materials within the watershed system. The peak figures shown here are based on winter travel, which includes home heating oil delivery.



HM generators. Multimedia inspections are conducted to identify floor drains and HM storage areas throughout the watershed system. MDC/DWM and DEP will be promoting a series of workshops and/or informational brochures targeted to small businesses that use HM. These programs are intended to provide information on various state-required risk reduction activities.

The Division supports both state and local programs that emphasize protection of local and regional drinking water supplies from household hazardous materials. MDC/DWM will continue to work with the Wachusett Household Hazardous Products Committee to help residents identify and reduce the risks from hazardous products in their homes.

MDC/DWM has coordinated with the Massachusetts Highway Department to install improved guardrails along highways adjacent to the Wachusett Reservoir (see Figure 2). These improved guardrails will limit the risk of accidental access into the reservoir. Another planned project is intended to locate and map stormwater drains, pipes, swales and ditches within the watersheds. Ultimately, maps for each community will be produced that will help the fire departments anticipate the path that pollutants may travel in the event of a HM release.

MDC/DWM will purchase the equipment needed to contain a 300-gallon petroleum spill for the local communities' use, fulfilling a recommendation in the Emergency Response Plan. Equipment that can contain a direct release to a water body will also be acquired for use in the metropolitan Boston drinking water supply watersheds.

Even though the likelihood of a hazardous material release that could impact the drinking water supply is remote, MDC/DWM has implemented an effective, inter-agency Hazardous Materials program in concert with MHD, DEP and local public safety officials. As part of its comprehensive watershed protection program, MDC/DWM will continue these on-going efforts in emergency response action planning and transportation hazards assessment.

Figure 2. Highway Protection Safe Guards

Before

After

Guardrail upgrades and buffer plantings are two examples of measures taken along the shore of the Wachusett Reservoir to protect the water from an accidental release of Hazardous Materials.

For More information on this Fact Sheet (Reference Number FS01.04) Contact: *Last Revised; June 2001*

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